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THE GRANT PROVISIONS OF THE LOCAL GOVERNMENT BILL[1]

I

To finance current expenditure British local authorities obtain funds from two sources[2] : from the local rate, their own tax over which they have complete control, and from grants out of the exchequer, on terms fixed by the central government. The Local Government Bill introduced into Parliament in November 1947 makes important changes in the administration of both these financial sources; but whereas the character of the local rate, as an outlay tax on the occupation of houses, land and other buildings, remains as it was, the most important of the grants—the formula grant introduced in 1929—is fundamentally altered in character. It is the purpose of this Note to consider the implications of these changes for the future of local finance.

It is suggestive to make a comparison among the free peoples of the world according to the importance of local (and regional) government in their economies, as measured by the proportions of total public revenue collected, and public outlay made, by regional and local governments on the one hand and by the national government on the other. On this basis countries seem to fall naturally into three groups—(*i*) federations, where it is usual to find that the share of local and regional governments exceeds that of the national government; (*ii*) what we may call the 'strong local government democracies ' where local government is something less than half, but usually well exceeds a third, of total finance; and (*iii*) the ' weak local government democracies ' where local finance represents at the most about 20 per cent of total finance.

Into the first-class fall the great federations, such as the U.S.A., Canada and Australia; in the second are found the Netherlands and the Scandinavian countries; in the third France and other countries where the prefectorial system prevails. The third class differs fundamentally from the other two in that local budgeting, being subject to veto by the agent of the national government, can have no real life of its own. However impressive local tax jurisdictions may look on paper, in practice local communities have very little control over their own destinies. At the least such countries are denying themselves the richness and variety in institutions and political experience that they might be enjoying; at the worst the opportunities for pressure by the agents of the national government leave open an easy path to a greater centralisation, which may ultimately cut at the root of popular government.

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[1] The substance of a paper read before the University of Aarhus, Dec. 1947.

[2] Income from property has never been an important source of revenue ; with the loss of Electricity Departments—the most remunerative Trading Service—it will become negligible.

In this classification the United Kingdom stands at present poised between the second and third categories. On the tax side (in conditions of the late thirties), only about 18 per cent of total revenue was collected by local governments, but on the expenditure side local authorities were responsible for some 33 per cent of public outlay, the difference between the two being, of course, covered by grants. In spite, however, of the relatively restricted range of local activities, no one who is familiar with local government, especially in the North, can doubt that British local government was still very much alive.

Although grants proved a high percentage of local revenue, British local budgets were effectively independent. This independence was assured by the existence of the local rate, which in spite of the serious reduction in its base due to the derating legislation of the 1920's, is still a poweful source of revenue, and one that is eminently suitable for local purposes. Of all possible local taxes one based on the soil and buildings of the area is the most likely to remain an independent source of revenue; and the British tax, assessed on the whole body of occupiers, has a wider base and a greater stability in yield than its close relation the local property tax, which is so common abroad.

It is thus a very satisfactory feature of the new local finance measures that the local rate looks like remaining in the future as strong and independent a source of revenue as it has been in the past. This guarantee of independence is the more necessary since there is little doubt that the loss of the leading local trading services will seriously diminish local interest in the activities of the Town Council. Management of the Trading Services was much more exciting than the administration of the statutory social services. It must always be borne in mind however that the local rate, indispensable as it is, develops rather serious disadvantages if pressed too far. Like all outlay taxes its ' formal incidence ' is regressive, so that it would cease to be acceptable on distributional grounds if too much is put on its shoulders—this apart from the fact that high rates are a deterrent to building, and tend by stimulating migration, to hasten the decay of declining areas.

Exchequer grants, and especially those grants which discriminate in favour of the poorer authorities, thus have a very definite role to play in British local finance. On the one hand it is their business to keep the level of rates moderate, while equalising as far as possible opportunities and services; on the other they must share responsibility for preserving, and not destroying, that most precious quality, independence in local affairs. It is in the light of this dual role that the present changes must be judged.

II

The formula grant which constituted the most important (although not the largest) part of the General Exchequer Contribution, or Block grant, introduced in 1929 and now being superseded, had a double origin. On the one hand it registered an attempt by the Exchequer to put an end to the disequilibrating and disequalising features of the percentage health grants introduced at the end of the first world war. These had proved disequilibrating to the exchequer both because of the strong tendency for grant aid to expand, and because of the uncertainty from year to year of the sum required; they had also proved disequalising between rich and poor areas, since only the wealthy authorities could afford to take full advantage of the grants. On the other hand the Local Government Act registered the first important step at interlocal equalisation. This was partly to be achieved by spreading the unequal cost of poor relief over wider areas than those for which the Guardians had been responsible, but was largely to be brought about through the operation of the differential grant on which the formula was based. In order to appreciate the significance of the present change it is necessary to glance briefly at the principles on which the formula grant of 1929 was based.

The grant rested on two basic principles. In the first place it was to be an objective measure of needs, unrelated to the propensity to spend of different areas. In the second place the amount of grant available each year was fixed in advance for a quinquenium, in order to impart a reasonable stability into both local expenditure and the relation between central and local finance. It was however agreed that the proportion of grant in (rate + grant) expenditure should not fall below what it had been in the initial period. The grant was distributed in the first instance to counties and county boroughs, on a per capita basis calculated by ' writing up ' (in administrative language ' weighting ') their actual populations by a series of factors designed to make allowance for particular causes of need.

The first of these factors was an allowance for a large child population. When the number of children under five exceeded 50 per thousand of the population the population was increased in proportion to the excess, *i.e.* the formula read $P\frac{C-50}{50}$ where P stands for the actual population, and C for the number of children under five per thousand of the population. Areas with less than 50 children under five per thousand thus received no extra population. The second factor was a compensation for a low rate yield, and took the form of an addition to the population of all areas whose rateable value per head was less than £10, according to the amount by which it fell short of that figure. The appropriate sum in this case was consequently $P\frac{£10-R}{£10}$ where R is the rateable value per head, so long as it is less than £10, when R becomes equal to 10. Thus while the first factor had a ‘ floor ’ of child population below which areas received no addition, the second had a ‘ ceiling ’ of rateable value; areas with rateable value of £10 and over were credited with no additional population on this count. They did not however ‘ lose ’ any population, on account of their wealth, so that a positive grant was assured to them; this arrangement subsequently became of some importance in limiting the equalising efficiency of the grant (see below p. 37). Initially only three areas failed to receive additional population on each of these counts, so that it may be surmised that the ‘ floor ’ and ‘ ceiling ’ were introduced to exclude extreme cases only.

The third factor, an addition to allow for heavy unemployment, was, taking counties and county boroughs together, the most important of the ‘ weights ’ even in the original plan; its scope was subsequently expanded (see below). For this purpose population as determined by actual population together with the additions due to the first two formulae, was written up by ten times the extent to which the percentage of unemployed men in the area, and one-tenth of percentage of the unemployed women, exceeded 1.5 per cent of the population. The formula was therefore $I \frac{U-1.5}{100} 10$, where U equals the percentage unemployment thus defined, and I is the actual population with the addition of the first two ‘ weights ’.

Finally, in rural areas only, a fourth addition was made for sparsity, as measured by the number of inhabitants per mile of road. Where this was less than 100 the formula $\frac{200-S}{200}$ was used, (S=population per mile of road); for density of population per mile between 100 and 200 the formula changed to $\frac{50}{S}$. Both additions were made cumulative on the population already weighted by the first two formulae, just as in the case of the unemployment weight. Taking all authorities together the relative importance of the weights in the total grant was estimated in 1936 as follows : (1) 25 per cent, (2) 22 per cent, (3) 29 per cent and (4) 24 per cent.

The Act of 1929 imposed a statutory obligation to examine the working of the formula in 1937 at the beginning of the third grant period (the first quinquennium was in fact a quadrennium), and to report to Parliament. During 1936 extensive discussions were held between the Ministry and Local Authorities, and early in 1937 an agreed Report was published[1]. By that time the severity of the depression (which might well have wrecked the whole scheme at the outset) was subsiding; but in the general improvement the continued existence of pockets of severe unemployment was becoming more conspicuous. Accordingly it was agreed to introduce an additional weight, on the formula $I \frac{U-5}{100} .5$ to give special help to areas where the unemployment percentage exceeded 5. The rural areas thereupon demanded an additional weight for sparsity. This was not altogether unplausible, since the narrowing of the rate basis by agricultural derating had considerably worsened their position, and in some very rural counties rate pundages had risen by large percentages.

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[1] Local Government Act, 1929. Report on Result of Investigation under Section 110. H.C. paper 42.

The sparsity formula was accordingly stepped up to $\frac{300-S}{300}$ for sparsity under 100 and to $\frac{40}{S-40}$ for sparsity between 100 and 200, and this was multiplied by the sum of all the other weights, and not, as previously, by the sum of only the first two. This last provision gave additional help to counties such as Glamorgan where unemployment in county areas was high. The object of this tying of the sparsity weight to the unemployment weight was partly to give such additional help, but partly also to ensure that as employment improved, and the additional urban aid declined, the additional rural aid should decline also. It is an interesting comment on the balance of interests necessary to achieve voluntary agreement in the field of local finance.

There was also discussion of the first two weights. It was recognised that the ageing of the population was diminishing the effectiveness of the ' children under 5 ' weight; an extension to cover all school children, and a new weight for old age pensioners, were both discussed; but no action was taken. It does not appear to have been noticed that the upward course of valuations was increasing the significance of the ' low rateable value ' ceiling, and on this also no action was taken. In place of the original three authorities with rateable value per head in excess of £10 there were now five wealthy counties and eight wealthy county boroughs which by this provision secured substantial positive grants in the per capita distribution.[1] The ceiling was thus becoming a serious limiting factor in the effectiveness of the grant as an interlocal equaliser.

In general it seems to have been agreed that in spite of the difficult times in which it had been launched, the formula was doing what was expected of it. Nevertheless it was abundantly clear by 1937 that the new grant was not going to reduce substantially or permanently the dispersion in rate poundages. For this (apart from the defect in the formula itself, just noted), there were three separate reasons. In the first place the area of the whole Block Grant was not extensive; it only covered slightly over a third of total grants from the exchequer to local authorities. Further, in the second grant period only £14 .9mn—34 per cent—of the Block Grant was distributed according to the formula; the remainder was issued as compensation for derating, on the basis of rates previously collected from the derated property. In the third grant period the proportion given differentially would rise to 58 per cent, but even the distribution of £26.9mn (especially taking into account the limiting factor of the ‘ low rateable value ’ ceiling) could achieve but a moderate degree of inter-local equality. The derating element of the Block Grant was not in intention equalising at all; but in practice it had come to effect a small improvement in the lot of some poor industrial towns, which were actually better off with the fixed compensation for derating than they would have been if left to exploit only their shrinking rate basis.[1]

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[1] For an explanation of the working of this formula cf. Hicks (J. R. and U.K.), ' The Beveridge Plan and Local Government Finance, Review of Economic Studies, 1943 44'

The second and more important cause of the relative failure of the Block Grant was the irrepressible nature of expenditure on poor relief. Away back in the eighteen seventies Goschen had been afraid to give a grant in aid of this, the most onerous of all local services, because it would risk ‘ opening the flood gates on the Consolidated Fund.[2]’ He was perfectly correct in his interpretation of the propensity to spend. The experience of the interwar period abundantly demonstrated that poverty in local resources was the main reason why expenditure on this head had not been even higher than it was. In those areas where in 1927 ‘ extravagant ’ Boards of Guardians had been temporarily superseded by agents of the central government, it had seldom proved possible to effect much economy.[3] With the onset of the real depression the temporary reduction in poundages due to the new grant was quickly blown to the winds, on account of the rising cost of poor relief. This tendency was only checked by the assumption of responsibility for the able-bodied unemployed by the national government, under the Unemployment Act of 1934.

Even this important change was not as effective as might have been expected, and after a few years rate poundages and their dispersion were both again rising. The very efficiency of the Assistance Board was partly responsible for this; it set standards of relief which were substantially above those of many authorities, and thus stimulated them to increase their own efforts. At the same time the exchequer was endeavouring to limit its liabilities by interpreting the term ‘ able-bodied ’ in a way which still left local authorities responsible for the relief of a substantial number of potential workers.[4] This difficulty was largely removed in 1937. It still remained true on the eve of the war however that poor relief was the most disequalising force in local expenditure;[5] and also that scales of relief still varied materially;

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[1] Cf. A. Abel, W. O. Atkinson and C. H. Pollard ‘ Derating ’, and review by the present author, Public Administration Spring, 1946.

[2] Cf. Studies in Local Finance.

[3] Cf. U. K. Hicks, Finance of British Government, p. 160.

[4] Cf. Hicks (J. R. and U. K.) Standards of Local Expenditure, pp. 39 ff.

[5] Cf. Hicks (J. R. and U.K.) Standards loc. cit.

it was a much more paying proposition to be a pauper in Blackpool than in, say, St. Helen's.

Poor relief was not the only disequalising factor in local expenditure. As opportunities for the poorer areas improved, so did their general propensity to spend rise. One important direction in which this occurred was in respect of the hospitals taken over from the Guardians at the time of their supersession.[1] On the whole this expenditure was also disequalising, since it was in the poorer towns that better hospital accommodation was most required. In spite of these and similar developments the standard of services in poorer towns remained substantially below that of their wealthier neighbours. A remarkable illustration of this difference may be found in the relative per capita expenditure on ' civic amenities '—parks, baths and cultural facilities. Whereas the richest towns were spending 37s. per head on these in 1938, the poorest county boroughs averaged only 19s. 6d.[2] This difference illustrates the force of a potential demand for further opportunities to spend.

Between the 1938 situation and that in which the new scheme is now launched, important changes have occurred in the relation between central and local finance. The national government takes over all responsibility for assistance and also for expenditure on hospitals. Thus two of the most disequalising factors in local expenditure have vanished from the scene. On the other hand local authorities have acquired new duties in respect of the development of health services (for these a provisional figure is included in the estimates of the working of the new scheme)[3]; in respect of the increased cost of the Fire Services handed back to local authorities in 1947 and in respect of provision for the aged and infirm (the cost of these are not included in the estimate). Although the new services are no doubt of less importance than the old, they will also call for relatively greater expenditure by poor authorities.

These changes have made havoc of the old basis of weighting. The transfer of public assistance removes the rationale of the unemployment weight; the significance of the ' children under 5 ' weight, was, as we have seen, already declining before the war; under the new method of grant the ' low rateable value ' weight becomes unnecessary. The whole formula, with the exception of the rural sparsity weight, has thus more or less collapsed as a result of external forces; and some change was in any case necessary. The new grant however professes to patch up what is left of the formula. The weight for children is extended to cover the whole school age, as was discussed in 1937 (this is done by simply doubling the population up to the age of 15). In conformity with the finish of the unemployment weight the scope of the sparsity weight is also reduced—no aid is available for sparsity above 70 per mile; but below that figure aid is given on the formula $I\frac{70-S.}{3S}$

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[1] Cf. Standards, cit., p. 37 ff.

[2] Cf. Standards, cit. p. 28.

[3] Cf. Cmd. 7253 of 1947.

The new ' Equalising Grant ' thus remains in name a formula grant, but the effect of the whittling down of the weights is to reduce differences in weighted populations to insignificance. Under the old formula differences between actual and weighted population were substantial. Comparing the ratio of weighted to unweighted populations, among the counties, 21 per cent had ratios of 4 or over, four counties had ratios exceeding 5, while two of the most genuinely wealthy (Middlesex and Surrey) had ratios of only 1.2. Among the county boroughs 12 per cent had ratios over 4, with Sunderland and Merthyr 5.6 and 5.8 respectively; while at the other end Bournemouth got no weighting at all, and 12 per cent had a ratio of less than 1.5.

Under the new formula 85 per cent of the counties and 82 per cent of the county boroughs have ratios between 1.2 and 1.3; no county borough gets a ratio higher than this, although among the counties seven, (11 per cent), have ratios over 1.3; Radnor alone exceeds 2.0. Within these narrow limits, it is true, striking sociological differences find a reflexion. The effect of the high birth rates of Catholic Merseyside is apparent, even the higher birth rates of the mining districts relatively to the cotton towns make a discernible difference. By and large however, as will be seen, effectively the formula marks up weighted populations—or what comes to the same thing, waters down rateable values per head—by close on 25 per cent all over the country. It is not apparent why such a complicated apparatus had to be used to obtain this result.

To the conclusion of the ineffectiveness of the new formula there is one exception: the new sparsity weight. Owing to its limited scope this is effective in only a few cases, but where it is, the result is startling. The respective forms of the three stages—1929, 1937 and 1947—of the sparsity weight are shown on Chart I. In the two earlier formulae for lower degrees of sparsity the curves were hyperbolic, but the precaution was taken of straightening them out before enormous grants were promised for very great sparsity. Under the new scheme this precaution is abandoned, and aid will expand at an ever-increasing rate to the ultimate limit of sparsity. Whenever the density of population is less than 70 per mile, one third of the inhabitants will be rewritten for grant purposes as 70, or alternatively, for every additional mile of road that the county cares to conjure up, it acquires 23 ghost ratepayers, who will (as we shall see) all agree to pay the rate for the county, whatever it may be.

So far as England and Wales are concerned the profiteer from this arrangement is undoubtedly Radnor. Now Radnor, it must be borne in mind, is already in a uniquely happy position. Thanks to its extreme sparsity on the one hand, and the presence of the Birmingham Waterworks from which it derives a large part of its rate revenue on the other, Radnor already has a rateable value per head higher than Surrey, and second only to Middlesex.

Radnor's rates were never high, and it is not apparent why it needs a grant which works out at about £2 per head of the population. In Scotland, outside the industrial belt, densities of less than 70 must be the rule rather than the exception. So far as the new formula has any differential effect it is a present from England to Scotland[1] and Wales.

Under the new system of awarding grants however, weighted population is only of very limited importance. Grant is now to be given on the ' watered down ' rateable value per head, but only in such a way that for all areas whose weighted rateable value per head is less than the national average of weighted population, rateable value is made up to that average, by effectively, the creation of ghost ratepayers (who are of course the national taxpayers in disguise) who will always agree to pay the rates of the district, whatever they may be. Thus at one stroke the two safeguards of the national budget—ascertainment in advance of the amount of grant required, and fixation for five years—have both been thrown overboard. The amount falling on the budget in any year cannot be ascertained until the local authorities have fixed their poundages. One Chancellor has been found to agree to this arrangement; it remains to be seen whether his successors will find it equally attractive.

The effect of the new grant on rate poundages is striking, (cf. Charts 2—5). Charts 2 and 4 show for counties and county boroughs respectively, the dispersion of actual poundages in 1946, in relation to (unwatered) rateable values per head; Charts 3 and 5 show, against the same rateable values, the Ministry's estimate of what poundages would have been in 1946 if the new scheme had been in operation. Under the old formula the scatter of poundages lies clearly on a line running from ' north east ' to ' south west ' of the diagram; the thickness of the line representing for the most part differences in the propensity to spend—the ' spenders ' tend to lie above the line and the ' stinters ' below. Under the new system this line is broken sharply at the national average (weighted R.V. per head = £6.43),[2] and bent round on itself, leaving the most highly rated areas those with rateable values near the national average.

By this means a really substantial degree of rate equalisation is at last achieved. Under the new system areas with the highest poundages (say the seven counties and eleven county boroughs in England and Wales with poundages of 20s. and over in 1946), would be brought down to such modest figures as 11s. to 14s. 6d.; four of the county boroughs are left with poundages rather higher than this, but most of the highly rated counties are pushed well below the national average for their class. In itself this is excellent, but it cannot be regarded as an equilibrium position. We have already noticed indications of unsatisfied propensities to spend; there is no reason to suppose that this sudden improvement in their circumstances will eliminate the desire of poor areas for more and better services—only in future they will mainly be financed by drafts on the national budget. Little opportunity has been given to realise what this implies for the exchequer.

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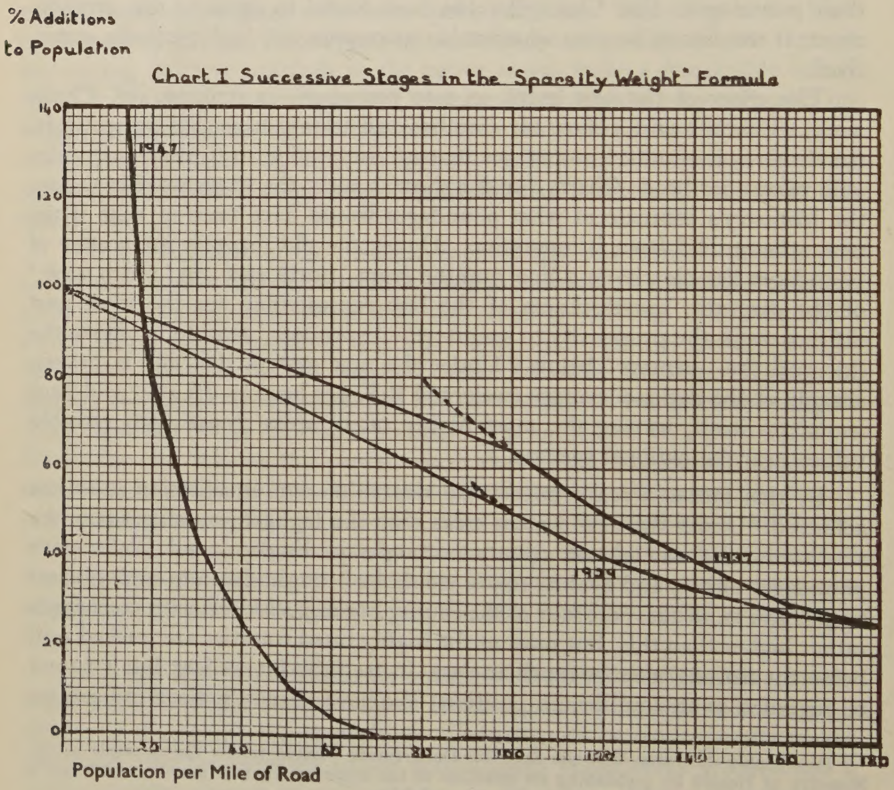
[1] It is highly desirable that the Scottish Department should follow the example of the Ministry of Health by publishing an estimate of the effect of the new grant; until this is done a very imperfect picture is all that is available.

[2] Corresponding to an ' unweighted ' average of approximately £7 15s.

It will be recalled that the old formula grant was based on the principle of the separation of grant from the level of spending; this position has now been completely reversed. The new scheme might be described as Earn-as-You-Pay, for it bears a strange parallel to the Pay-as-You-Earn system of income tax. In each case tax (subsidy = negative tax) depends directly on the behaviour of the economic subject concerned. Just as surely as P.A.Y.E. restricts work by the individual because of the tax on it, E.A.Y.P. must stimulate spending by the local authority because of the subsidy on it; for all practical purposes the new scheme presents local authorities with a pro-



gressive percentage grant on all items of expenditure. Not in their wildest dreams has such largesse been available before.[1] The effect of previous percentage grants however provides a good indication of what is likely to happen.

This fundamental change in the relation between local and central finance must give food for thought on broader aspects of policy, in at least two directions. On the one hand it brings into focus the effect of present policy in relation to the so-called Development Areas (which are in fact just those areas which will not develop without repeated doses of artificial respiration). In what sense, it is pertinent to ask, is it a sound allocation of the nation's resources, first to subsidise and cajole firms to go to these areas in preference to others where they could make a profit without subsidy, and then to subsidise heavily the local authorities concerned, in order that they may develop and maintain a standard of public services that the newcomers will find tolerable. Would it not be cheaper and cleaner to liquidate the most uneconomic of these local propositions and to re-establish the inhabitants in a better-placed ' new town ' ?

Still more important are considerations concerning the effect of rapidly expanding grants on the autonomy of the most heavily aided areas. One of the chief virtues of the old Block Grant was that it imposed practically no restriction on local budgetary freedom; the grant was available of right, and rested on principles which were an insurance against abuse. It is hard to believe that this autonomy can endure under the system now to be established, or that the national government will not ask for more control over the repertoire of pipers whose remuneration it so handsomely provides.[2]

It is unlikely that the present grant scheme, any more than its predecessors will have a very long life; nevertheless it is evident that it cannot be recast for some time. As has been pointed out however[3] a very considerable improvement could be incorporated at any time—but the sooner the better before interests become vested. Instead of grant being determined by a combination of weighted rateable value per head and the poundage *of the area*, average poundage—either for the country as a whole or of the authorities receiving grant—could be substituted in the calculation. This would remove the most objectionable feature of the P.A.Y.E. system. If, further, the total grant was fixed in amount for a few years (say for a three year moving average, as used to be the case for income tax) the uncertainty falling on the exchequer would also be much reduced.

[1] Compensation for the partial agricultural Derating under the 1923 Act might be claimed as a precedent, but the total potential grant was quite small, and only rural areas were involved.

[2] It is true that one possible source of abuse which was open to local authorities under the old system—the ability to attract more grant by keeping rate valuations low will no longer be available when the Inland Revenue takes over the business of valuation, as provided in the Bill—differences in the level of assessment still affect rateable values per head in the present estimates of the working of the new scheme. None of the amounts involved however are large, cf. Hicks (J. R. and U.K.) The Problem of Valuation for Rating, pp. 67 ff.

[3] By D. N. Chester in *The Times*, November 17th, 1947.

CHART II. Counties. Actual Population

Poundages (s in £)

R.V. per head (£)	24/- and over	23/- to 23/11	22/- to 22/11	21/- to 21/11	20/- to 20/11	19/- to 19/11
9 and over ...						
8½ but under 9 ...						
8 but under 8½ ...						
7½ but under 8 ...						
7 but under 7½ ...						
6½ but under 7 ...						
6 but under 6½ ...						
5½ but under 6 ...						
5 but under 5½ ...					Carnarvon	Yorks, W. Denbigh
4½ but under 5 ...						Merioneth
4 but under 4½ ...			Glamorgan			Hunts.
3½ but under 4 ...				Holland Monmouth		I. of Ely Anglesey
3 but under 3½ ...	Cardigan			Carmarthen	Pembroke	
2½ but under 3 ...						
2 but under 2½ ...						

and Poundages, 1946–47.

18/- to 18/11	17/- to 17/11	16/- to 16/11	15/- to 15/11	14/- to 14/11	13/- to 13/11	12/- to 12/11
				Middlesex Radnor	Surrey	E. Sussex W. Sussex
		Herts.	Kent			
			Bucks	Berks. Southampton I. of Wight		
		Dorset Essex				
	Cambridge		Chester Devon Peterborough Warwick Westmorland			
	Worcester	Bedford Lancaster	Wilts	Somerset	Rutland Yorks, N.	
	Northampton	Oxford	Notts. Flint	Northumberland		
Brecon	Hereford E. Suffolk	Derby Leicester York, E.	Cornwall Cumberland	Gloster Salop		
Lindsey W. Suffolk		Kesteven				
Durham		Stafford				
	Montgomery	Norfolk				

CHART III. Counties. Actual Population,

Poundages (s in £)

R.V. per head (£)	15½ and over	15½–15	14½–15	14–13½	13½–14	13–13½	12½–13
9 and over ...							Surrey
8½ but under 9							
8 but under 8½	Hertford			Kent			
7½ but under 8			Bucks.	Berks. I. of Wight	Southampton		
7 but under 7½	Dorset			Essex			
6½ but under 7		Cambridge	Westmorland	Chester Devon			Warwick
6 but under 6½					Wilts	Bedford Somerset	Lancaster
5½ but under 6					Northampton	Oxford	
5 but under 5½				Denbigh	Yorks, W. Carnarvon	Cornwell Cumberland Yorks, E. Yorks, N. Brecon	Hereford
4½ but under 5							Kesteven Lindsey
4 but under 4½				Hunts.	Glamorgan		Durham
3½ but under 4							Holland Anglesey
3 but under 3½					Carmarthen		
2½ but under 3							
2 but under 2½							

1946. Estimated Poundages.

12–12½	11½–12	11–11½	10½–11	10–10½	9½–10	9–9½	Under 9
iddlesex	E. Sussex W. Sussex Radnor						
Rutland Worcester							
Northumberld' Flint		Nottingham					
Salop E. Suffolk	Derby	Gloster Leicester					
erioneth	W. Suffolk						
				Stafford			
onmouth	I. of Ely			Norfolk		Montgomery	
	Pembroke		Cardigan				

CHART IV. County Boroughs. Actua

Poundages (s in £)

R.V. per head (£)	24/– and over	23/– to 23/11	22/– to 22/11	21/– to 21/11	20/– to 20/11	19/– to 19/11	18/– to 1
11 and over ...							
10½ but under 11							
10 but under 10½							
9½ but under 10							Mancheste
9 but under 9½							
8½ but under 9							
8 but under 8½							
7½ but under 7				W. Ham	Gt. Yarmouth		
7 but under 7½							Birmingha Bolton Barnsley
6½ but under 7				Norwich	Salford Swansea	Ipswich Rochdale Wakefield	Halifax Preston Sheffield York Dewsbury
6 but under 6½				E. Ham Hull	Rotherham	Oldham Grimsby	Barrow
5½ but under 6					Warrington		S. Shields
5 but under 5½	Gateshead				Barnsley Walsall		
4½ but under 5				Stoke	W. Bromwich	Dudley	St. Helen'
4 but under 4½							
Under 4 ...	Merthyr						

Population and Poundages, 1946–47.

17/– to 17/11	16/– to 16/11	15/– to 15/11	14/– to 14/11	13/– to 13/11	12/– to 12/11	11/– to 11/11	10/– to 10/11
	Southend		Brighton Hastings		Blackpool Eastbourne	Southport	Bournemouth
					Croydon		
			Newcastle	Oxford			
		Exeter		Canterbury			
	Chester Liverpool	Wallasey Bath	Cardiff Southampton	Plymouth			
Leeds	Derby	Portsmouth			Huddersfield		
Bradford Leicester Nottingham	Doncaster	Birkenhead Gloster Northampton	Bristol Reading Newport				
	Bootle Bury Lincoln		Carlisle				
Burton	Coventry	Blackburn Wolverhampton Worcester			Stockport Tynemouth	Darlington	
Middlesboro' Smethwick	W. Hartlepool						
Sunderland Wigan							

CHART V. County Boroughs. Actual

Poundages (s in £)

R.V. per head (£)	18/6 and over	18/– to 18/5	17/6 to 17/11	17/– to 17/5	16/6 to 16/11	16/– to 16/5	15/6 to 15/11	15/– to 15/11	14/6 to 14/11
10 and over									
9½ but under 10							Manchester		
9 but under 9½									Exeter
8½ but under 9								Liverpool	Wallasey
8 but under 8½						Leeds			Derby Portsm'th
5½ but under 8				Bradford Great Yarm'th.	W. Ham			Doncaster Leicester	N'hampton
7 but under 7½					Bolton	Bootle Bury	Burnley		
6½ but under 7				Norwich	Burton Rochdale	Dewsbury Halifax Wakefield	York Swansea		Ipswich Preston
6 but under 6½									E. Ham Rotherham
5½ but under 6									
5 but under 5½								Gateshead	
4½ but under 5									
4 but under 4½									
3½ but under 4									
Under 3½									

Population 1946, Estimated Poundages.

14/– to 14/5	13/6 to 13/11	13/– to 13/5	12/6 to 12/11	12/– to 12/5	11/6 to 11/11	11/– to 11/5	10/6 to 10/11	10/– 10/5	Under 10/–
Southend		Brighton Hastings			Blackpool	Eastb'ne. Southport	Croydon		Bournem'th
	Newcastle		Oxford						
						Canterbury			
Bath Chester				Cardiff	Plymouth				
			South'pton		Huddersfield				
Gloster Nott'gham	Reading	Birkenhead Newport		Bristol					
Birm'ham Lincoln			Carlisle						
Blackburn Salford	Sheffield	Coventry Worcester	Wolverhampton				Tynem'th	Darlington Stockport	
	Barrow Hull Oldham		Grimsby						
		S. Shields		Smethwick West-Hartlepool		Middlesborough	Warringt'n		
		Barnsley Walsall			Wigan	Sunderland			
				Dudley Stoke	St. Helens		West Bromwich		
Merthyr									

In the longer run more drastic change will no doubt be called for, and it might then be considered whether it would not be advisable to return to the basic principle of the divorce of the measure of needs from expenditure. As one alternative it is by no means certain that a better result than in the past could not be obtained by a true formula grant. Now that the most disequalising factors in local expenditure have been removed, it should not be impossible to devise a formula which reflects needs accurately. For instance something like the old unemployment weight would still be called for in a true formula grant, since a poor local population requires exceptional local services, and unemployment is not a bad measure of poverty; a weight could also be given for old age pensioners.

In principle the most perfect basis of grant would no doubt be local income per head, but in practice this is not practicable. Once valuations have been made uniform by the central valuation authorities however, true rateable value per head could be made into a sufficient and an eminently practicable substitute. Grants on this basis could be made as equalising in opportunity as desired, by assessing the grant progressively with falling rateable value per head, without the dangers or the heavy uncertainty of the present scheme.

Ursula K. Hicks.

FOOD AND ENERGY

Some Nutrional Aspects of Rationing

1. Introductory

The amount of energy produced by a machine of a given type during a set period depends on the amount of fuel used. Not, of course, in the sense that the larger this amount of fuel the greater will be the output of energy, but in that an optimum amount of fuel is required to yield an optimum amount of work. There is an analogy to this in the behaviour of the human body, which, however, is not a single machine but a host of them rolled into one. The growth and the maintenance of the body demand the intake of a variety of nutrients; its energy output needs fuel, *i.e.*, food that will be burned up to produce calories. The basic requirement of the body for calories depends on the individual size and on the energy expended in the maintenance of that particular individual when in a state of rest; each type of work performed demands additional calories. If we denote the energy expenditue of a person asleep by 100, we obtain the following indices of calory requirements for his activities: lying awake in bed, 115; sitting on a chair, 155; walking slowly (2.6 miles an hour), 310; active exercise, 445; stone working, 615; swimming, 770; walking downstairs, 560; walking upstairs, 1,690[1].

Unlike a machine, the human body is adaptable, and it can carry out a given activity without being supplied with an adequate amount of energy food, by drawing on its own reserves. In burning up part of these the body gets thinner, and by thus reducing its weight it also reduces the basic amount of fuel needed for its maintenance; *ceteris paribus*, the person who has lost weight can maintain his reduced weight on less food than he required previously.

There is, of course, a limit to this burning up of body tissue, and the habitually underfed body will try to minimize it by reducing its metabolism through a slowing down of its movements. If acute hunger breeds revolt, chronic malnutrition breeds lethargy. Looking at the problems of nutrition from this angle one at once realizes their immediate and direct importance for the economy of a country. Adequate food is not only essential for building up the strength of coming generations and for keeping down the incidence of actual illness on the population in general; it is, first and foremost, the fuel for the human body, and as such as important as the fuel for our machines for our ability to attain maximum productive capacity, an ability on which everything else in our economy depends.

How, then, is this supply of body fuel, and of nutrients in general, regulated at present? Since the inclusion into our rationing system of bread and potatoes[2], rationing is now more comprehensive than it has ever been before, the main categories of food that still remain unrationed being fish, fresh fruit and vegetables other than potatoes, and meals from catering establishments.

[1] Cf. Sherman, *Chemistry of Food and Nutrition*, New York, 1941.

[2] Bread (and flour) since July 21st, 1946; potatoes since November 9th, 1947.

How much of the necessary requirements are supplied by the individual rations, and what additional amounts of nutrients must be obtained from unrationed foods : these are the questions with which we shall be concerned in this paper.

2. Nutritional Intake from Rations excluding 'Points' Foods

First, let us consider the rations allotted to the several categories of people. In Table I are set out all the rations allowed per ordinary ration book[1] per week, omitting only the foods that could be obtained on ' points '; with these we shall deal in section 3 of this paper. We have assumed the sweets ration to be purchased on the average as one part of chocolate to two parts of boiled sweets, and all the B.U.s to be expended on bread; for the 3 lbs. 15 ounces of bread, 3 lbs. of flour could have been substituted.

Table I

Ordinary Weekly Ration Excluding ' Points ' Foods

	Quantity	Price p. Unit*		Outlay	
		s.	d.	s.	d.
Meat	12 oz.	1	4	1	0
Bacon	2 oz.	2	0		3
Eggs, shell	½ egg		1¾		1
Cheese	2 oz.		10		1¼
Milk	2 pt.		5		10
Butter	3 oz.	1	4		3
Margarine	3 oz.		9		1¾
Lard	1 oz.	1	0		0¾
Sugar...	8 oz.		5		2½
Jam	4 oz.	1	3		3¾
Bread	3 lb. 15 oz.		2½†		10¼
Potatoes	3 lb.		1¼		3¾
Chocolate	1 oz.	2	8		2
Boiled Sweets ...	2 oz.	2	4		3½
Tea	2 oz.	3	4		5
Total Cost of Ration				5	3½

*Price of eggs, per egg ; of milk, per pint ; of all other foods, per lb. † Approximately.

The differential allowances for children, juveniles, and certain classes of adults, are shown in Table II. The figures of milk allowances in Table II exclude all milk consumed at school. Deductions from the ordinary ration are printed in *italics* and prefixed with a minus sign; all the quantities given in roman type represent additions to the ordinary ration as set out in Table I.

The nutritional values of the foods enumerated in Tables I and II will be found in Table III. The data refer, for milk, to a pint; for eggs, to an egg; for all other foods, to an ounce; they are given with the appropriate deductions for the inedible portion of the respective food. The values for meat represent averages, obtained from two cuts of beef—sirloin and stewing steak—and from shoulder of mutton, in the proportion of 1:2:1. All the figures in Table III were derived from the *War Memorandum No.* 14, published by the Medical Research Council[2].

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[1] For persons aged 18 years and over.

[2] H.M. Stationery Office, 1945.

These three tables enable us to calculate the amounts of nutrients supplied to individuals by their rations, as defined above; this has been done in Table IV. As is usual for figures of nutritional intake, they are reduced by us to daily averages. We have not, however, included in Table IV the data representing the special allowances for the several categories of manual workers, over and above the supplementary ration given to the respective age group ; but they will be found in Table V. The reason for this omission is that while the figures in Table IV can be compared with average requirements, given in Table VI, no such comparison is possible with respect to the additional needs for food arising from strenuous manual work, unless we can specify

TABLE II *Special Rations per Week*

(Additions to the ordinary ration are shown in roman type, deductions in *italics*)

	Age Group	Meat	Eggs, Shell	Eggs, Dried	Cheese	Milk	Bread lb. oz.	Potatoes lb. oz.
Manual Wk. Male	18 & over	—	—	—	—	—	2 10	—
	under 18	—	—	—	—	1½ pt.	4 6	—
Manual W. Female	18 & over	—	—	—	—	—	14	—
	under 18	—	—	—	—	1½ pt.	2 10	—
Heavy Worker	—	—	—	10 oz.	—	—	2 10	—
Expectant Mother		½ rat.	½ egg	1½ eggs	—	7 pt.	14	1 8
Juvenile ...	... 11–18	—	—	—	—	1½ pt.*	2 3	—
Child ...	... 5–11	—	—	—	—	1½ pt.*	7	—
	4–5†	—*½ rat.*	½ egg	—	—	4 pt.*	—	*—1 8*
	2–4†	—*½ rat.*	½ egg	—	—	4 pt.*	*—1 12*	*—1 8*
	1–2†	—*½ rat.*	2½ eggs	—	—	4 pt.	*—1 12*	*—1 8*
	0–1†	—*½ rat.*	2½ eggs	—	—	5 pt.	*—1 12*	*—1 8*

* These figures exclude milk consumed at school.
† Children in this age group also have no tea ration.

TABLE III *Nutritional Values of Rationed Foods*

	Unit	Calories	Protein gm.	Calcium mgm.	Iron mgm.	Vitamin A* Intern. Units	Vitamin B_1 micro gm.	Vitamin C mgm.
Meat†	oz.	66	4.2	3.0	0.9	13	26	—
Bacon, streaky	oz.	129	2.2	3.0	0.3	—	110	—
Eggs, shell ...	egg	78	6.2	30.0	1.3	500	74	—
ditto, dried ...	egg	68	5.4	25.8	1.3	355	48	—
Cheese	oz.	117	7.1	230.0	0.2	369	9	—
Milk	pt.	340	18.0	680.0	0.6	600	260	6.0
Butter	oz.	211	0.1	4.0	—	1136	—	—
Margarine ...	oz.	218	—	1.0	0.1	568	—	—
Lard	oz.	253	—	—	—	—	—	—
Sugar	oz.	108	—	—	—	—	—	—
Jam	oz.	71	0.1	3.0	—	6*c*	1	0.6
Bread	oz.	70	2.4	17.0	0.3	—	42	—
Flour	oz.	98	3.4	23.0	0.5	—	69	—
Potatoes ...	oz.	16	0.4	2.0	0.1	—	26	3.0‡
Chocolate, plain	oz.	148	1.3	7.0	0.9	21*c*	26	—
Boiled Sweets	oz.	105	—	—	—	—	—	—

* *c* denotes carotene.
† The values for meat were obtained from beef, sirloin and stewing steak, and from mutton, shoulder, taken in proportion of 1:2:1.
‡ Value for potatoes in January and February.

Table IV

Daily Amounts of Nutrients Supplied by Ration Excluding ' Points ' Foods

	Calories	Protein Total gm.	Protein *Animal gm.*	Calcium gm.	Iron mgm.	Vit. A Intern. Units	Vit. B_1 mgm.	Vit. C mgm.
Ordinary Ration ...	1461	40.1	*15.5*	0.44	5.5	1067	0.72	17.5
Rations for Special Groups :								
aged 11—18	1884	55.9	*19.3*	0.67	7.1	1196	0.99	18.8
aged 5—11	1604	46.4	*19.3*	0.60	5.9	1196	0.82	18.8
aged 4—5	1549	45.8	*22.6*	0.82	4.8	1434	0.76	13.2
aged 2—4	1269	36.2	*22.6*	0.75	3.6	1434	0.59	13.2
aged 1—2	1297	38.4	*24.8*	0.76	4.1	1613	0.62	13.2
aged 0—1	1346	41.0	*27.4*	0.86	4.2	1699	0.66	14.1
Expectant Mother ...	2073	69.5	*38.7*	1.17	8.2	1790	1.19	31.2

Table V

Special Allowances for Manual Workers: Nutrients per Day

		Calories	Protein Total gm.	Protein *Animal gm.*	Calcium gm.	Iron mgm.	Vitamin A Intern. Units	Vitamin B_1 mgm.
Male	18 & over ...	420	14.4	—	0.10	1.8	—	0.25
	under 18 ...	350	12.0	—	0.09	1.5	—	0.21
Female	18 & over ...	140	4.8	—	0.03	0.6	—	0.08
	under 18 ...	70	2.4	—	0.02	0.3	—	0.04
Heavy Worker		587	24.5	*10.1*	0.43	2.1	527	0.27

the particular kind of work that is being considered. This will be amply clear even from the few data that we have given in our introductory section.

Our figures in Table VI are based on scales of nutritional requirements supplied to us by the Ministry of Health. It will be seen that while children up to the age of 5 years can obtain from their rations excluding the ' points ' foods practically all the calories and all or most of the protein they require—the younger age groups even showing substantial surpluses of calories—the

Table VI

*Estimated Daily Average Requirements of Nutrients**

	Calories	Protein gm.	Calcium gm.	Iron mgm.	Vitamin A Intern. Units	Vitamin B_1 mgm.	Vitamin C mgm.
Male, over 21	3000	70	0.8	10	3000	0.90	30
Female, over 21	2500	60	0.8	10	3000	0.75	30
Juveniles and Children :							
17—21	3000	90	1.1	13	3000	0.90	30
15—17	3000	100	1.4	15	3000	0.90	30
11—15	2900	95	1.5	16	3000	1.30	30
7—11	2100	65	1.4	13	3000	0.95	30
5—7	1800	58	1.3	10	3000	0.70	30
4—5	1500	50	1.3	8	3000	0.60	30
3—4	1300	46	1.2	7	3000	0.55	30
2—3	1200	44	1.1	6	3000	0.50	30
1—2	1100	42	1.0	5	3000	0.45	30
6 months—12 months ...	800	23	0.5	3	3500	0.30	30
Expectant Mothers ...	3000	80	1.5	13	5000	1.80	45

* Based on data supplied by the Ministry of Health.

male adult who is not classed as a manual worker can derive from his ration without the ' points ' foods less than half of the calories he needs and a little over half of the protein, *viz.*, 57 per cent, 37 per cent of it being animal protein. Hence, the animal protein that he obtains from his ration excluding the ' points ' foods, represents only about 22 per cent of his total requirements of protein.

3. Nutrients from ' Points ' Foods

What are the additions to the rations available from the expenditure of food ' points ' ? At present[1], each person irrespective of his age or the type of work in which he is engaged, can, on the average, spend one ' point ' a day. The range of foods rationed on 'points' is wide, and the amounts of nutrients obtained for one ' point ' can differ considerably. Thus, while our figures in Table VI indicate within very close limits the average daily amounts of nutrients available from the rations exclusive of ' points ' foods, the additions made to these figures by the ' points ' foods are liable to substantial variations.

Table VII sets out a number of typical foods rationed on ' points ', showing for each of these the quantity that could be purchased with the weekly allowance of 7 ' points '. One noticeable omission from this list—that of tinned milk—calls for an explanation. Tinned milk is a valuable food which has been in considerable demand in particular since the reduction of the ordinary milk ration to 2 pints a week. Evaporated milk, requiring 4 ' points ' per tin, represented a fair return for the outlay of ' points '. However, in January, tinned milk of a low ' points ' value was not always available in Oxford, and hence we decided to exclude all tinned milk from our selection of ' points ' foods.

TABLE VII

Foods Rationed on ' Points '

	Quantity for 7 ' Points '		Cost	
			s.	d.
Rolled Oats	3 lb.	8 oz.	2	4
Semolina	3 lb.	8 oz.	2	4
Legumes*	2 lb.	5 oz.	1	11¼
Breakfast Cereals	1 lb.	12 oz.	2	0½
Biscuits, plain	1 lb.	3 oz.	1	7
ditto, sweet		11 oz.		11
ditto, chocolate		7 oz.	1	0¼
Prunes	1 lb.	12 oz.	1	9
Syrup		13 oz.		7¾
Marmalade	1 lb.	3 oz.	1	2¼
Luncheon Meat		3 oz.		8
Sardines	3½ tins		3	0¾
Average of 12 Foods			1	7½

*Half green peas and half haricot beans. The ' points ' value of the peas was 4 and that of the beans 2 per lb.

The nutritional values represented by the quantities of the several foods shown in Table VII are given in Table VIII. It will be seen that their energy

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[1] January, 1948.

TABLE VIII

*Nutrients Available from Expenditure of 7 ‘ Points ’ on Specific Foods**

	Calories	Protein gm.	Calcium gm.	Iron mgm.	Vitamin A Intern. Units	Vitamin B_1 mgm.	Vitamin C mgm.
Rolled Oats	6216	190.4	0.90	67.2		7.17	—
Semolina	5376	168.0	0.28	16.8	—	1.46	—
Legumes†	2886	244.2	1.26	59.2	358§	4.73	—
Breakfast Cereals‡ ...	2716	109.2	0.28	39.2	—	0.31	—
Biscuits, plain	2033	64.6	0.44	11.4	—	0.70	—
ditto, sweet	1496	22.0	0.15	3.3	—	0.20	—
ditto, chocolate ...	938	23.8	0.12	8.4	—	0.07	—
Prunes	1036	16.8	0.25	19.6	5497§	—	—
Syrup	1053	1.3	0.09	5.2	—	—	—
Marmalade	1349	1.9	0.05	—	—	0.02	38.0
Luncheon Meat ...	213	12.9	0.01	1.8	—	0.38	—
Sardines	1176	79.8	1.60	15.4	1078	—	—
Average 7 ‘ Points ’ ...	2208	77.9	0.45	20.6	578	1.25	3.0
Average 1 ‘ Point ’ ...	315	11.1	0.06	2.9	82	0.18	0.4

* The respective quantities are shown in Table VII.
† Assumed to be purchased as half peas and half beans.
‡ The values are for wheat flakes. § Carotene divided by 3.

values range from 6,216 to 213 calories, the former obtainable from 3½ lb of rolled oats and the latter from 3 ounces of luncheon meat; the protein values of the foods, equivalent to an outlay of 7 ‘ points ’, show an even wider range. The average energy value for an outlay of 7 ‘ points ’—*i.e.*, a person's ‘ points ’ ration per week—from the 12 foods selected by us, would be 2,208 calories, and hence the return for one ‘ point ’, 315 calories, while the average yield of protein would be 77.9 grammes per week and 11.1 grammes per day, with a daily average of 2.2 grammes of animal protein. A larger calorific return could be achieved by spending all the ‘ points ’ on cereals and legumes. The possible outlay of a weekly ‘ points ’ ration on these foods is set out in Table IX. In this way the daily average per person of calories from the ‘ points ’ foods could be raised to 694 and that of protein to 27.5 grammes, all of which would, of course, be second class protein[1]. Such an expenditure of the

TABLE IX

‘ Points ’ Outlay on Foods of High Calorific Value

	Quantity	‘ Points ’	Calories	Protein gm.	Calcium gm.	Iron mgm.
Rolled Oats	1 lb.	2	1776	54.4	0.26	19.2
Semolina	8 oz.	1	768	24.0	0.04	2.4
Macaroni	1 lb.	2	1536	48.0	0.11	6.4
Legumes*	10 oz.	2	780	66.0	0.34	16.0
Total		7	4860	192.4	0.75	44.0
Daily Av. per Person		1	694	27.5	0.11	6.3

*Assumed to be purchased as half peas and half beans.

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[1] The purchase of the foods in Table IX would also yield larger averages for calcium, iron, and vitamin B_1, than those obtained from the foods in Table VIII, but a lower average for vitamin A, the values for Table IX being, for the expenditure of one ‘ point ’ : calcium 0.1 gm., iron 5.8 mgm., vitamin B_1 0.52 mgm., vitamin A 11 International Units.

' points ' would certainly carry austerity to extremes, and it seems unlikely that anyone would be able and willing to put up permanently with so little variety.

Our selection of foods in Table VIII must not, of course, be taken to represent what are the actual average purchases of ' points ' foods. This list, however, seems sufficiently extended to indicate what might be the approximate return of nutrients from the outlay of ' points ' in those cases where a housewife combines purchases of ' points ' rationed basic energy foods with those of semi-luxuries that are rationed similarly. She may choose different kinds of cereals, of dried fruit, of fish and meat products, forgo biscuits and legumes, and add some tinned milk, tinned fruit or tomatoes, processed peas or baked beans; so long as she goes in for some variety it is unlikely that the average nutritional returns from her outlay of ' points ' will be much above our averages in Table VIII[1], although they may fall considerably below them.

4. NUTRIENTS FROM MEALS OUT

Meals in canteens and restaurants are unrationed, and since the rationing of the two basic energy foods, bread and potatoes, they have become very important and, in some instances, indispensable sources of nutritional supply. In Table X are given the quantities of potatoes allowed per main meal to the different types of catering establishments, and the daily averages of nutrients from the potatoes served with a stated number of meals per week. Children who have lunch at school have usually five such meals per week; industrial workers may only have four main meals per week in their canteen, owing to the staggering of working hours, which for a number of workers has reduced the working week to four days. People who go to British Restaurants or similar places may do so on 6 days a week. It is, of course, possible for an industrial worker or a child to have one or two main meals a week out in addition to their meals from the works canteen or the school canteen; but this does not seem to happen very often.

TABLE X

Nutrients Available from Potatoes Supplied with Canteen Meals

Per Week Nos. and Type of Meals	Potatoes per Meal	Daily Averages					
		Calories	Protein	Calcium	Iron	Vitamin B_1	Vitamin C†
	oz.		gm.	mgm.	mgm.	mgm.	mgm.
6 Industrial Canteen ...	12	165	4.1	21	1.0	267	23.1
4 Industrial Canteen ...	12	110	2.7	14	0.7	178	15.4
6 Ord. Canteen or Rest.*	$3^3/_7$	47	1.2	6	0.3	76	6.6
5 School	8	91	2.3	11	0.6	149	12.9

*Including British Restaurants.

†25 per cent deducted for wastage in cooking and serving.

It will be seen that while the domestic ration only provides just under 7 ounces of potatoes per head per day, the industrial canteen can serve 12 ounces of potatoes with each meal and the school canteen 8 ounces. In other catering establishments the amount of potatoes per main meal corresponds to half of the daily domestic ration.

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[1] Unless she regularly buys tinned milk, in which case the average figures for calcium would be distinctly higher.

In Table XI we show what we consider fair estimates of the quantities per meal of certain basic foods. Obviously, other cereals may take the place of flour; jam, dried fruit, or syrup, that of sugar; the range of vegetables may show different proportions or it may be altogether different. School meals may make regular use of milk and omit some of the starch; some industrial canteens may provide more and some catering establishments for the general public may provide less than the amounts tabulated by us. Yet we believe that, as a broad outline, the figures in Table XI are reasonable.

The average daily intake from potatoes and the basic foods enumerated in Table XI, from a given number of canteen meals per week, is shown in Table XII. Every child now obtains free at school one-third of a pint of milk daily, and in the final row of Table XII we have added the nutrients from this milk to those from the school meals. Even allowing for the inclusion of fish and unrationed meat products in the meals for children and adults, it is unlikely that the nutriment derived from them will be much larger than is suggested by our figures in Table XII, except in the case of meals supplied by some industrial canteens. In dealing further below with the intake from rations and from meals out, we have assumed that additions to the foods enumerated in Tables X and XI yield on the average per meal another 30 calories and $\frac{3}{4}$ gramme of animal protein, in the case of British Restaurants and similar establishments, while in the case of good industrial canteens the increase amounts to 125 calories and 2 grammes of protein, most of it of animal origin[1].

5. Adequate and Inadequate Supply of Food

We can now consider the total nutritional intake available to a person, or group of persons, from the rations and from meals in canteens or restaurants. In Table XIII we survey the position of single adults, *i.e.*, persons of 18 years and over. These, unless they are classed as 'industrial workers', hold an ordinary ration book providing the foods set out in Table I. To the nutrients supplied by these foods per day we have added the daily averages of nutrients from the 'points' foods in Table VIII. The total ration of the adult man or woman would thus yield an average return per day of 1,766 calories and 51.2 grammes of protein, 17.7 grammes of it animal protein. Thus even with 6 meals per week out the male adult would require daily other unrationed foods to supply over 700 calories and at least 5 grammes of protein, if he were to obtain his standard requirements of calories and protein as stated in Table VI. A woman who has all her meals at home would need about the same amount of unrationed foods to attain an intake of 2,500 calories and 65 grammes of protein, and an industrial worker who is served with 6 substantial

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[1] These figures were chosen so as to yield round averages for the intake per day from 6 meals a week. *Cf.* Table XIII, footnotes.

TABLE XI

*Basic Foods for Canteen Meals (excluding Potatoes)**

	Average per Meal		Average per Meal
Meat	1½ oz.	Vegetables :	
Fat	½ oz.	Cabbage	3 oz.
Flour	2 oz.	Swedes	1 oz.
Sugar	½ oz.	Carrots	1 oz.

* Quantities estimated.

TABLE XII

Nutrients from Potatoes and Other Basic Foods in Canteen Meals

Per Week Nos. and Type of Meal	Daily Averages Calories	Protein Total gm.	*Animal gm.*	Calcium gm.	Iron mgm.	Vit. A Intern. Units	Vit. B_1 mgm.	Vit. C† mgm.
6 Industrial Canteen ...	593	16.4	*5.4*	0.12	3.7	1469	0.48	45.4
4 Industrial Canteen ...	395	10.9	*3.6*	0.08	2.5	979	0.32	30.3
6 Other Canteen or Rest.*	475	13.5	*5.4*	0.10	3.0	1469	0.28	28.9
5 School	447	12.6	*4.5*	0.09	2.9	1224	0.32	31.5
do. plus 1⅔ pt. milk ...	528	16.9	*8.8*	0.25	3.0	1367	0.38	32.9

* Including British Restaurants.

† 25 per cent of the vitamin C in the edible portion of the potatoes, and 50 per cent of that in the edible portion of the other vegetables (cabbage, swedes, and carrots) have been deducted for losses in cooking and serving.

TABLE XIII

Nutrients from Full Adult Rations and Meals Out (Per Day)*

	Calories	Protein Total gm.	*Animal gm.*	Calcium gm.	Iron mgm.	Vit. A Inter. Units	Vit. B_1 mgm.	Vit. C mgm.
Non-Manual Worker:†								
No Meals out	1776	51.2	*17.7*	0.50	8.4	1149	0.90	17.9
6 Meals per Week out‡	2276	65.2	*23.7*	0.60	11.4	2618	1.18	46.8
Manual Worker, Male :								
p. Wk. 6 Canteen Meals§ ...	2896	83.6	*24.7*	0.72	13.9	2618	1.63	63.3
p. Wk. 4 Canteen Meals§ ...	2663	77.6	*22.4*	0.68	12.7	2128	1.47	48.2
Manual Worker, Female :								
p. Wk. 6 Canteen Meals§ ...	2616	74.0	24.7	0.65	12.7	2618	1.46	63.3
p. Wk. 4 Canteen Meals§ ...	2383	68.0	22.4	0.61	11.5	2128	1.30	48.2

*For persons of 18 years and over. The rations here include the ' points ' foods, the values used for these being those shown in Table VIII.

†Male and female.

‡A meal in a British Restaurant or similar place has been assumed to supply 583 calories and 16.3 grammes of protein, 7 grammes of which are animal protein (*i.e.*, per day : 500 calories, 14 grammes total protein, 6 grammes animal protein).

§ A meal in an industrial canteen has been assumed to supply 818 calories and 21 grammes of protein, 8.1 grammes of which are animal protein (*i.e.*, per day, from 6 meals per week : 700 calories, 18 grammes total protein, 7 grammes animal protein).

canteen meals would still want over 600 calories a day in order to reach the standard intake for a male adult doing not very strenuous work, of 3,000 calories per day. For heavy work the standard requirement would obviously be much higher. The extra cheese ration that is given to certain workers only provides about 170 calories per day. The addition of fish and unrationed meat products to the foods provided by the ration can improve the supply of protein, and in particular that of animal protein, which latter, however, is even then likely to be low for adults having no meals out. It is much more difficult to attain any substantial increase in the calorific intake, since all the main calorific foods are now strictly rationed. If we disregard meals from catering establishments, the more common of the unrationed foods are vegetables, fish, and sausages. In order to obtain 100 calories from cabbage, a person would have to consume 20 ounces of it, while of swedes he would need 25 ounces. If he chose fish, he could eat either 3 ounces of herrings or 8 ounces of plaice or 11 ounces of whiting. Were he lucky enough to get sausages, 1½ ounces of beef sausage or 1⅓ ounces of pork sausage would yield approximately the same amount of energy.

In Table XIV we consider the nutritional intake available to husband and wife. We show the calories and proteins obtained, per day, from the ordinary rations for two adults and from the ' points ' foods for two persons, and compare this with the standard requirements. It reveals a deficiency of about 1,950 calories, to be made good by unrationed foods. Let us assume that the couple has no meals in canteens or restaurants. If, then, they consumed daily on the average 1½ lbs of cabbage and 1½ lbs of swedes, or their nutritional equivalents in the form of other vegetables—and they must have good digestions to do this—they would add by means of this about 216 calories and 12 grammes of protein to their intake, and they would still have to eat between them daily nearly 3 lbs of herrings or 1½ lbs of sausages, in order to attain a calorific intake conforming to their standard requirements. The gargantuan meals of whiting or plaice that could replace the sausages or herrings are too fantastic to be considered at all.

A family with young children need have less difficulty in achieving adequate nutrition, provided their requirements are not much above the standard figures and the housewife spends her food ' points ' with reasonable care. In Table XV we consider two types of families, each of them with 3 young children. In the first family none of the children is assumed to be older than 5 years, while in the second the age of the children is between 5 and 9 years. Even if of the first of these families none of the children attends a nursery school, the daily deficiency of calories from the family rations, as compared with the family requirements, amounts to only 439, half of which could be obtained from 3 lbs of vegetables—which in any case would be needed as essential sources of vitamins and minerals—and the other half from fish, sausages, or some other unrationed foods. Moreover, we have not included in Table XV nutrients from cod-liver oil, fruit juice, and bananas, for the children, which would narrow further the gap between the daily supply of food from rations and special allowances on the one hand, and requirements on the other. For a family with somewhat older children this gap is wider, but it will be seen from Table XV that it could be closed by buying meals at school for the three children. If the two adults also had each a main meal out on 6 days a weak, there would be a ' surplus ' of about 950 calories over the standard requirements of the family.

TABLE XIV

Adult Rations and Requirements

Combined Daily Rations for Husband and Wife	Calories	Protein
2 Ordinary Rations*	2922	80.2
Average for 2 ' Points '	630	22.2
Daily Total	3552	102.4
Daily Requirements	5500	130.0
Daily Deficiency for 2 Persons	1948	27.6

*Excluding ' points ' foods.

TABLE XV

Daily Rations and Requirements of Selected Mixed Families

	Calories	Protein gm.
(*1*) *Husband, Wife, and 3 Children aged 5, 3, and under 1 Year:*		
Rations for 5*	7086	203.2
Average for 5 ' Points '	1575	55.5
Daily Total	8661	258.7
Daily Requirements	9100	249.0
Daily Deficiency or *Surplus* for Family of 5	−439	*+9.7*
(*2*) *Husband, Wife, and 3 Children aged 5, 7 and 9 Years:*		
Rations for 5*	7679	218.8
Average for 5 ' Points '	1575	55.5
School Milk for 3 Children†	243	12.9
Daily Total	9497	287.2
Daily Requirements	10900	303.0
Daily Deficiency for Family of 5	1403	15.8
Daily Averages from Dinners out (*approx.*):		
2 Adults on 6 Days p. Week‡	1000	28.0
3 Children on 5 Days p. Week	1350	39.0
Daily Total from Dinners	2350	67.0
Daily Surplus for Family of 5 from Rations and Meals out	*+947*	*+51.2*

*Excluding ' points ' foods.
†Daily averages from 1½ pints per child per week.
‡In British Restaurant or similar place.

From the data in Tables IV and VI it is apparent that for families with older children or juveniles the problem of adequate nutrition is more difficult; but the worst case is that of a family consisting of adults only. The single person; the young couple without children; older families with grown-up sons and daughters; the landlady who caters for boarders and who does all her own housework ; these are instances of people who may be habitually exposed to under-feeding.

6. Cost of the Rations and of Supplementary Foods

In Tables XVI and XVII are given the cost of the weekly rations and of meals out. The cost of the rations in Table XVI excludes the cost of the foods bought against ' points ', but the figure of 1s. 7½d. per person per week in Table VIII, seems a fair one to use in this context. Thus, the expenditure on the *total* ordinary ration for an adult would amount to 6s. 11d., and another 7s. 6d. might be spent on meals out. This, as we have found in Table XIII, would only yield about three-fourths of a man's standard requirements of calories, unless the meals are provided by an industrial canteen. Two meals out daily on six days a week would reduce the deficiency to a little over 200 calories a day and increase the weekly cost of the food to about 22s. With additional unrationed foods such as herrings, sausages, or cut sandwiches, it would be possible to obtain a daily intake of 3,000 calories at a cost of, say, 27s. a week. A woman's standard requirement of 2,500 calories daily could be procured with only one meal out on 6 days a week, the total outlay on food amounting in this case to about 20s. a week.

Table XVI

Weekly Cost of Rations Excluding 'Points' Foods

		s.	d.		s.	d.
Person over 18 (ord.)	...	5	3½	Expectant Mother†	7	5
Juvenile	11—18 ...	6	4¾	Manual Worker, Male, 18 and over	5	10¼
Child	5—11 ...	6	0¼	*ditto*, under 18	6	10¼
	4—5* ...	4	2½	Manual Worker, Female, 18 and over	5	5¾
	2—4* ...	3	10	*ditto*, under 18	6	5¾
	1—2* ...	4	1½	Heavy Worker	6	4½
	0—1† ...	4	3			

*Per week 6 pints of priority milk at 1½d. a pint.
†Per week 7 pints of priority milk at 1½d. a pint.

Table XVII

Weekly Cost of Meals Out

Nos. and Type of Meals	s.	d.
6 ⎱ Canteen or British	7	6
4 ⎰ Restaurant	5	0
5 School	2	1

The total rations for a family with 3 young children none of whom was over 5 years old, could be purchased for 31s. weekly. This, as shown in Table XV, would leave 439 calories per day to be found from unrationed foods. Assuming the consumption daily of 3 lbs of vegetables other than potatoes, and of the ' extras '—cod-liver oil, etc.—available to the children, a varied and in general adequate diet could be supplied for an outlay of between 45s. and 50s., *i.e.*, for about as much as it would cost to purchase enough food for a husband and wife only, who between them would have to spend at least 22s. 6d. on meals out. Of course, very few people have two meals out daily on six days a week. Indeed, if all those who from a nutritional viewpoint require meals out would want to buy them, we should have to open masses of new British Restaurants for the supply of inexpensive meals, and to gather regularly round the family dinner table would become for many a thing of the past.

7. Conclusion

Our survey has shown that under the present system of food rationing, the population falls into 3 main groups: those whose allowances are fairly generous; those who are supplied with about sufficient food; and those who obtain significantly less than their standard requirements. In the first category are the young children; in the second, older children who have regular meals at school, and, further, women doing light industrial work in a factory with a good canteen service, and who have not to cope with additional heavy housework; all other people are, generally speaking, in the third group. To some extent the shortage of food of this latter group can be compensated by the surplus available for the young children, provided, of course, that the young children and the adults belong to the same family; in some cases the deficiency may be wiped out by the consumption of home-grown agricultural produce. In these instances it is even possible for a certain amount of wastage to occur. There are, of course, some persons who normally need less than their standard requirements, just as there are others who normally need more. Beyond figures of consumption per head for families of a clearly defined structure it is meaningless to calculate averages of nutritional intake as a gauge of the level of nutrition. It does not improve the nutrition of the families Brown and Jones that the food consumption of the families Smith and Miller is above standard requirements.

We have, in the main, disregarded in this paper the exceptional requirements for calories, arising from exceptional exertions. Heavy work or strenuous sport may raise a person's need for calories by 50 per cent and more above his standard requirements. In such cases malnutrition may occur even in a family with young children. If the husband is a heavy worker the housewife may come to a permanent compromise, by curtailing her own and the children's consumption, so that everyone goes short and none remains too hungry.

People whose supply of food falls habitually short of their requirements will suffer from a craving for stimulants. The consumption of tobacco, and of tonics and fancy foods, often of little nutritional value, has probably in many instances become a substitute for proper food, and increased people's cost of living[1].

Obviously, the inclusion of bread and potatoes in the rationing system has exposed certain categories of people to malnutrition, while, at the same time, adding an incentive to injudicious spending. To ration potatoes may at present be inevitable, but some means should be found to de-ration bread and flour, even if it were necessary to stretch the wheat flour with some other flour or to resort again to a much higher rate of grain extraction. High fines could be imposed for wastage. There can be little doubt that our present over-rigid system of rationing constitutes a danger to people's health and that it is bound to act as an impediment to highest industrial efficiency.

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[1] On December 1st, 1947, Mr. Strachey stated in the House of Commons that our imports of sugar were to be reduced by 400,000 tons, costing £12 millions, in order to save hard currencies. This sugar, distributed over a year, would have supplied per head per week approximately 5½ ounces of sugar at an expenditure of a little over a penny in hard currency, and it would have added 85 calories to the daily intake per head.

T. SCHULZ.

TABULAR APPENDIX

EDITORIAL NOTE

Tables comparing the broad trends of production, prices and wages, the volume of foreign trade and the supply of coal for a number of European countries, the United Kingdom and the U.S.A. are given below. For some countries more up-to-date figures are available than for others. These time lags will, it is hoped, be reduced in future and the tables will be extended when more information becomes available. The index numbers are based as far as possible on 1938.

Explanation of symbols :

... the figure is not available.
( ) figures provisional or approximate.
— figure is negligible.

Table I

Industrial Production (or Employment)

Index Numbers : 1938=100

Index Numbers	1939	1945	1946	1947					
				June	July	Aug.	Sept.	Oct.	Nov.
Industrial Production[1]									
U.S.A.[2]	122	228	191	208	200	208	211	216	215
France	...	46	81	97	93	84	97	100	97
Belgium	105	38	88	104	101	101	104	...	...
Netherlands	111	31	73	91	95	83	94	109	105
Denmark[10]	105	74	97	109	112	114	116	117	118
Sweden	106	91	110	111	112	109	108	110	...
Norway[2]	107	69	100	122	79	120	120	122	124
Finland[3]	...	52	70	82	74	79	87	...	...
Poland[4]	...	...	79	103	101	106	108	...	...
Bulgaria	106	...	122	151	150	149	149	172	173
Italy[5]	100	...	47	68	71	71	73	72	...
Germany :[6]									
British Zone	...	...	31	34	36	37	38	39	41
American Zone	...	...	37	48	52	51	48	49	...
Industrial Employment:									
Switzerland[7]	99	110	123	131	...	...	134	...	...
Czechoslovakia[8]	...	...	86	94	...	...	...	...	...
Great Britain[9]	100	100	97	103	103	104	105	106	106

Sources: Official Statistics. For *Belgium:* Institut de Recherches Economiques et Sociales, Louvain ; for *Sweden* : Sveriges Industriforbund ; for *Finland:* Unitas ; for *Germany:* Control Commission (British Element) ; for *Italy* : Confederazione Generale dell' Industria Italiana.

[1] Mining and Manufacturing, except Denmark (manufacturing only), and Netherlands (mining, manufacturing and public utilities).

[2] Adjusted for seasonal variations.

[3] Total (export and home) industry ; seasonally adjusted.

[4] Output of national enterprises and of enterprises under state control.

[5] 1939=100 provisional figures. [6] 1936=100.

[7] Wage earners employed in manufacturing, and building. Quarterly figures.

[8] Total employment in manufacturing, mining and building, 1937=100.

[9] Employment (incl. employers and self-employed) in manufacturing. June 1939=100 ; all annual figures refer to June. [10] Revised series.

Table II

Wholesale Prices[1]

Index Numbers : 1938=100

Index Numbers					1947					
		1939	1945	1946	June	July	Aug.	Sept.	Oct.	Nov.
U.S.A.	a[2] ...	98	134	154	188	191	196	200	202	203
U.K.	a ...	101	167	173	188	191	191	193	197	200
	b[3] ...	91.5	138	142	155	158	158	160	163	165
France ...	a ...	105	375	648	904	888	1004	1096	1122	1204
	b ...	92	(275)	190	265	260	292	319	328	351
Holland	a ...	102	177	245	264	267	266	267	268	272
	b ...	99	(122)	169	181	183	182	183	183	186
Switzerland	a ...	104	206	201	208	208	209	210	215	217
	b ...	103	...	204	212	212	213	214	219	221
Sweden ...	a ...	103	173	168	180	180	180	180	182	184
	b ...	98	...	173	199	199	199	199	201	204
Denmark	a ...	105	190	188	205	210	210	209	209	213
	b ...	98	...	180	196	201	201	200	200	204
Norway ...	a ...	102	177	168	175	179	179	178	178	178
	b ...	97	...	138	144	147	147	147	147	147
Finland	a ...	106	386	605	688	704	750	760	778	854
	b ...	98	...	207	235	241	256	259	265	292
Czechoslovakia	a ...	115	173	295	307	313	314	315	319	317
	b ...	114	...	170	177	181	181	182	184	183
Italy	a ...	...	...	...	5329	5779	5876	6202	5991	...

[1] Prices expressed in national currencies and in U.S. dollars at official rates.
[2] a=in national currency. [3] b=in U.S. currency.

Table III

Wages

Index Numbers[1]				1947					
	1939	1945	1946	June	July	Aug.	Sept.	Oct.	Nov.
U.S.A.[2]	101	163	173	196	197	197	199	200	202
United Kingdom[3]	...	149	162	167	167	168	169	170	173
Switzerland[4]	100	146	160	...	...	175	...	...	...
France[5]	...	285	400	...	...	...	...	...	...
Netherlands[6]	100	131	163	166	166	168	169	170	170
Czechoslovakia[7]	100	182	304	315	317	317	317	317	...

[1] Base periods : U.S.A. and France : 1938=100 ; United Kingdom : September 1939 =100 ; Switzerland : Jan.–August 1939=100 ; Netherlands : 1938–9=100 ; Czechoslovakia : March 1939=100.

[2] Average hourly earnings in manufacturing.

[3] Weekly wage rates ; Ministry of Labour (all industries).

[4] Hourly rates in industry ; quarterly figures.

[5] Hourly rates in Paris of unskilled workers in industry. The annual figures refer to October.

[6] Hourly rates in industry. [7] Hourly rates in manufacturing.

TABLE IV

Foreign Trade

Volume Index (Deflated Values: 1938=100)

Index Numbers		1939	1945	1946	1947 June	July	Aug.	Sept.	Oct.	Nov.
U.S.A.	Imports	114	130	139	130	125	114	135	144	125
	All Exports	105	183	191	246	227	220	214	236	216
U.K.	Imports	97	62	69	77[2]	...	...	89[3]	...	...
	Exports	94	46	99	102[2]	...	...	114[3]	...	...
France	Imports	88	34	112	132	124	103	109	107	101
	Exports	99	10	43	92	87	78	74	89	83
Switzerland	Imports	117	31	104	148	153	138	139	158	168
	Exports	96	57	101	126	123	93	117	123	111
Denmark	Imports	98	21	86	121	91	80	90	95	72
	Exports	101	32	60	72	79	61	70	67	72
Sweden	Imports	109	21	67	114	127	120	133	124	102
	Exports	106	56	78	87	92	92	88	105	89
Norway	Imports	111	46	78	146	99	88	153	118	87
	Exports	108	19	61	113	71	78	86	86	79
Poland	Imports[4]	...	97[5]	160	233	139	97	136	136	...
	Exports	...	17[5]	34	67	65	68	61	65	...
Finland	Imports	86	12	35	49	54	56	58	59	60
	Exports	95	17	45	57	60	60	60	60	60
Hungary	Imports	...	1	16	53	48	58	56	88	52
	Exports	...	...	15	27	30	20	25	24	28

[1] Average of 1st quarter. [2] Average of 2nd quarter.
[3] Average of 3rd quarter. [4] Incl. U.N.R.R.A. deliveries.
[5] Monthly average of 3rd and 4th quarter.

TABLE V

Production of Steel (Ingots and Castings)

Thousand metric tons	1937	1938	1946	1947 June	July	Aug.	Sept.	Oct.	Nov.
U.S.A.	4282	2400	5035	6322	5960	6334	6159	6859	6577
Great Britain	1101	881	1074	1032	1077[1]	951	1081	1397	1110
France	660	518	367	463	473	458	530	568	416
Belgium	322	190	190	232	241	227	209	293	265
Luxembourg	209	120	108	147	163	158	165	175	156
Sweden	94	83	101	95	65	92	94	104	94
Poland	122	120	102	127	141	144	143	145	...
Czechoslovakia	192	153	139	186	167	179	197	212	199
Hungary	55.4	54.0	29.4	50.3	55.5	56.2	54.3	59.8	52.9
Italy	175	194	96	159	170	154	147	163	...
Austria	54.2	...	15.6	28.6	38.4	34.4	34.2	36.8	35.8
Germany:									
British Zone	...	...	198	209	242	268	252	289	269
American Zone ...	59[2]	...	21	31	37	36	35	41	...

Source: Official Statistics.

[1] Five weeks. [2] 1936.

TABLE VI

Coalmining and Supplies

A. Hard Coal Output

Monthly Figures or Averages[1]

Million metric tons	Av. 1946	1947 July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec. as % of 1935–38
U.S.A.[2]	44.8	39.8	50.7	52.2	56.9	51.7	54.2	159
United Kingdom	16.0	13.5	13.6	19.2[6]	16.3	17.2	18.0	82
West Germany[3]	5.1	6.9	7.0	7.2	7.7	7.6	7.4	66
France[2]	3.9	4.0	3.7	4.0	4.6	2.5	3.3	87
Belgium	1.9	1.8	1.8	2.0	2.1	1.9	2.1	90
Holland	0.7	0.9	0.8	0.9	0.9	0.8	0.8	73
Poland	3.9	5.0	5.1	5.4	5.8	5.4	5.2	103
Czechoslovakia	1.2	1.3	1.2	1.3	1.5	1.4	1.4	130[4]

B. Total Imports of Solid Fuels including Bunkers (ton for ton)

Monthly Figures or Averages

Thousand metric tons	Av. 1946	1947 July	Aug.	Sept.	Oct.	Nov.	Dec.	Dec. as % of 1935–38
France...	867	1624	1829	2037	2097	1600	...	80[4]
Belgium	262	396	599	531	617	556	674	128
Holland	268	365	325	296	345	258	309	44
Luxembourg	154	217	202	217	223	187	204	80
Norway	157	296	239	204	189	187	135	53
Denmark	314	442	481	424	388	327	293	62
Sweden	287	755	648	803	693	612	626	96
Switzerland	128	212	207	229	270	260	284	104
Italy ...	471	905	918	950	863	686	...	62[4]
Finland	68	190	193	181	226	217	220[5]	15.2
Portugal	48	105	88	119	77	59	50	46

C. Exports of Solid Fuels excluding Bunkers (ton for ton)

Monthly Figures or Averages

Thousand metric tons	Av. 1946	1947 June	July	Aug.	Sept.	Oct.	Nov.	Nov. as % of 1935–38
U.S.A.	4105	7398	5850	8220	7150	6980	...	...
Thereof to Europe	1370	3380	3293	3543	3837	3862	2904	...
U.K.	385	75	69	82	117	84	65	2
West Germany	1089	1132	930	1286	1076	1108	1056	37
Poland	1277	2178	2514	2520	2381	2112	...	...
Czechoslovakia	55	115	145	166	149	128	145	43
France	32	43	45	28	42	49	3[illegible]	32
Belgium	78	171	226	212	225	200	15[illegible]	31
Holland	36	61	46	45	48	50	59	12

Source: European Coal Organisation ; United Nations ; Monthly Bulletin of Statistics.

[1] Calendar months. [2] Incl. a small quantity of lignite.

[3] British and French zones. [4] November. [5] 1–27 December only. [6] Five weeks.